



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,201	10/14/2003	Igor Anilovich	GP-302891	4193
7590	05/03/2005		EXAMINER	
CHRISTOPHER DEVRIES			TRAN, BINH Q	
General Motors Corporation				
Legal Staff, Mail Code 482-C23-B21			ART UNIT	PAPER NUMBER
P.O. Box 300			3748	
Detroit, MI 48265-3000			DATE MAILED: 05/03/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/685,201	ANILOVICH ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	BINH Q. TRAN	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above; the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.  
 2a) This action is **FINAL**.                  2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-28 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 9-13 is/are allowed.  
 6) Claim(s) 1-8, 14-28 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

*Claims 1-8, and 14-28 are rejected under 35 U.S.C. 102 (b) as being anticipated by Hamburg et al. (Hamburg) (Patent Number 5,255,512).*

Regarding claims 1, 14, and 22, Hamburg discloses an engine diagnostic system (20), comprising: a catalytic converter (26); an outlet O2 sensor (Fig. 2) that generates an outlet signal that is based on an oxygen level of exhaust gases exiting said catalytic converter (26); and a controller (25) that adjusts a secondary fuel trim (27) based on said outlet signal (23) and that indicates a fault status if said secondary fuel trim is outside of a fuel trim limit range and said outlet signal is out of a diagnostic range (e.g. See col. 2, lines 55-67; col. 3, lines 1-50; col. 5, lines 7-52; Blocks 38-47).

Regarding claims 2, 15, Hamburg further discloses an inlet O<sub>2</sub> sensor (23) that generates an inlet signal based on an oxygen level of exhaust gases entering said catalytic converter, wherein said inlet signal is biased based on said outlet signal (e.g. See col. 2, lines 25-66).

Regarding claims 3, 16, Hamburg further discloses that the secondary fuel trim is outside of said fuel trim limit range when an inlet sensor bias has achieved a bias limit and said outlet signal is outside of a control range (e.g. See col. 2, lines 24-67; col. 3, lines 1-50; Blocks 38-47).

Regarding claims 4, 17, and 24, Hamburg further discloses that the controller indicates a pass status if a secondary fuel trim within said fuel trim limit range (e.g. See col. 5, lines 7-52; Blocks 38-47).

Regarding claims 5, 18, 23, and 25, Hamburg further discloses that the controller indicates a pass status if said outlet signal is within said diagnostic range (e.g. See col. 2, lines 55-67; col. 3, lines 1-50; col. 5, lines 7-52).

Regarding claim 6, Hamburg further discloses that the fault for a given sample is indicated if said secondary fuel trim has achieved said fuel trim limit and said outlet signal is out of said diagnostic range (e.g. See col. 5, lines 7-52; Blocks 38-47).

Regarding claims 7, 19-20, and 26-27, Hamburg further discloses that the fault decision is confirmed if said secondary fuel trim is outside of said fuel trim limit range and said outlet signal is out of said diagnostic range for a threshold period within a monitoring period (e.g. See col. 5, lines 7-52; Blocks 38-47).

Regarding claims 8, 21, and 28, Hamburg further discloses that the fault status is indicative of one of a cylinder air to fuel (A/F) ratio imbalance and an exhaust leak (e.g. See col. 5, lines 7-52; Blocks 38-47).

***Allowable Subject Matter***

Claims 9-13 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art fails to disclose or render obvious the claimed combination including a third comparing circuit that compares the outlet O<sub>2</sub> signal to predetermined diagnostic thresholds; and a decision circuit that generates one of a pass status and a fail status for the engine based on outputs of the first, second and third comparing circuits.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of six patents:

Grutter et al. (Pat. No. 5272872), Uranishi (Pat. No. 6594987), Sindano et al. (Pat. No. 5602737), Yoshida et al. (Pat. No. 4364227), Kobayashi et al. (Pat. No. 6446429), and Bower, Jr. et al. (Pat. No. 6453665) all discloses exhaust gas purification for use with an internal combustion engine.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



BT  
April 28, 2005

Binh Q. Tran  
Patent Examiner  
Art Unit 3748